



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,609	09/20/2005	Tomoko Akai	12480-000144/US	8155
36593 7590 03/11/2010 HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195				
EXAMINER				
SQUALLS, MARGARET				
ART UNIT		PAPER NUMBER		
1791				
MAIL DATE		DELIVERY MODE		
03/11/2010		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/549,609

Applicant(s)

AKAI ET AL

Examiner

MARGARET SQUALLS

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/8/2009.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-12 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-12 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date 9/3/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Non-Final Office Action is in response to election/restriction response received 12/8/2009.

Election/Restrictions

1. Applicant's election without traverse of Group I pertaining to claims 1-5, 9-12, and 17-20 on 12/8/2009 is acknowledged. Claims 6, 7, and 13-16 are withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-4, 9 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Nakagawa et al. (JP 57-188432) in view of Aulich (US 4294811).**

Nakagawa '432. discloses a method of manufacturing High silicate glass. A borate glass composed mainly of SiO₂, B₂O₃ and Na₂O is phase separated into a phase abundant in B₂O₃ and Na₂O (acid-soluble phase) and a phase abundant in SiO₂ (acid-insoluble phase) generally by a heat treatment. It is well known that when glass phase separated in this way is treated with a mineral acid, such as sulfuric acid, nitric

acid or hydrochloric acid, the acid-soluble phase is eluted, a porous glass abundant in SiO₂ is obtained, and by firing this porous glass, a high silicate glass is obtained (Page 3). Nakagawa '432 does not expressly disclose the borosilicate glass impurities manganese, cerium, chromium, etc. however Aulich teaches it is commonly known in the art that copper, cobalt, chromium, cerium, and manganese are commonly known contaminants of borosilicate glass of which weight percentages will be commonly in the range of 0.1 wt% to 2.0wt% (Column 3, lines 56-61). **Aulich** further teaches the addition of boric acid to the solution (column 4, lines 1-6)

It would be obvious to one having ordinary skill in the art at the time the invention was made to add boric acid in the melting step as taught by Aulich in the process of Nakagawa '432 in order to reduce the variability of boron retention (Column 4, lines 65-column 5 lines 10)

Regarding instant claim 3, 9, both melting steps (heat treatment and sintering) require heating the raw material. Furthermore it would be obvious to one having ordinary skill in the art to carry out the melting step twice in order to completely melt the raw material. It would also be obvious to one having ordinary skill in the art to add boric acid (i.e. borate salt) in the second melting step to prevent high-volatile borate salt from vaporizing.

4. Claims 5, 10, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable by Nakagawa et al. (JP 57-188432) in view of Aulich (US 4294811) in further view of Corning Glass Works (US 3113855).

The teachings of Nakagawa '432 in view of **Aulich** are detailed in the rejection of claims 1-4, 9 under 35 USC 103(a) above.

Neither Nakagawa '432 nor Eizai nor Elmer expressly disclose repeated heat and acid treatment.

Corning Glass Works discloses a process of producing high silica glass. Borosilicate glass is subjected to repeated heat and acid treatment between the acid-treatment step and the sintering step (Column 1, lines 40-55) in order to reduce the B₂O₃ content of the glass, increase transmittance and the annealing point (Column 3, Paragraph 4). It would be obvious to one of ordinary skill in the art at the time the invention was made to reduce the B₂O₃ content of the glass as taught by Corning Glass Works in the process of Nakagawa '432.

The rationale to do so would have been the motivation provided by the teachings of Corning that to do so would predictably increase the transmittance and the annealing point of the glass (Column 3, Paragraph 4).

5. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable by Nakagawa et al. (JP 57-188432) in view of Aulich (US 4294811) or Nakagawa et al. (JP 57-205337).

The teachings of Nakagawa '432 in view of **Aulich** are detailed in the rejection of claims 1-5, 9-12 under 35 USC 103(a) above.

Neither Nakagawa '432, Eizai, Elmer or Corning expressly disclose the use of ethylenediamine tetraacetic acid (EDTA).

Both Aulich and Nakagawa '337 discloses the use of EDTA in order to further treat the produce a glass with high ultraviolet transmittance. (Abstract).

It would have been obvious to one of ordinary skill in the art to include the EDTA treatment taught by Nakagawa '337 in the process of Nakagawa '432 or Aulich.

The rationale to include the EDTA as taught by Nakagawa '337 in the high silicate glass production is the motivation by the teaching of Nakagawa' 337 that to do so would remove metal oxides from the glass and predictably increase the glass transmittance (Page 4, Paragraph 2)

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARGARET BRODIE whose telephone number is (571)270-7713. The examiner can normally be reached during normal business hours. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Katarzyna Wyrozebski can be reached at (571)272-1127.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARGARET SQUALLS/
Examiner, Art Unit 1791

/KHANH NGUYEN/
Primary Examiner, Art Unit 1791